Questions and Answers Concerning Fish Advisory for Alamo Lake

February 13, 2004

1. What is the fish advisory at Alamo Lake?
The Arizona Department of Environmental Quality (ADEQ), the Arizona Game and Fish Department (AGFD) and the Arizona Department of Health Services (ADHS) are advising consumers to limit consumption of fish from Alamo Lake to:

- Largemouth bass and black crappie:
- Children under the age of six: **No consumption**
- Women of child bearing age: **One 8oz. fish meal per month**
- All other adult women: **Three 8oz. fish meals per month**
- Adult men: **Four 8oz. fish meals per month**

- Channel catfish:
- Children under the age of six: **No consumption**
- Women of child bearing age: **One 8oz. fish meal per month**
- All other adult women: **Five 8oz. fish meals per month**
- Adult men: **Six 8oz. fish meals per month**

This advisory does not limit recreational use of Alamo Lake for fishing, bird watching, swimming or other types of recreation.

2. Where is this fish consumption advisory in effect?
This fish consumption advisory applies only to Alamo Lake. This lake is located in Mohave and La Paz Counties in east central Arizona where the Santa Maria and Big Sandy Rivers meet.

3. How did the fish consumption advisory for Alamo Lake come about?
Mercury was detected at elevated concentrations in largemouth bass, black crappie and channel catfish taken from Alamo Lake as a part of a study conducted by ADEQ and AGFD. Average mercury concentrations of 0.74 milligrams per kilogram (mg/Kg) were measured in the fillet portion of largemouth bass, 0.79 mg/Kg for black crappie and 0.51 mg/Kg for channel catfish caught from Alamo Lake. On the strength of these data, a fish consumption advisory has been issued jointly by the Arizona Department of Health Services and ADEQ.

4. Why is mercury considered harmful?
Mercury is a liquid metal that when consumed by living organisms is transformed to methylmercury (or "organic" mercury). While methylmercury has been linked to a variety of health effects, the primary basis for this fish advisory is its toxicity to the nervous system, including the brain. Most at risk are babies and unborn children whose mothers consume fish containing mercury during pregnancy or while nursing. Exposure to mercury at elevated concentrations can delay walking and talking and cause learning disabilities in children. If you have questions about eating fish during pregnancy or while nursing, please contact your health

care provider. Additional information on this subject can be found at:

http://www.epa.gov/waterscience/fish/chemfacts.html

http://www.atsdr.cdc.gov/toxprofiles/tp46.html

http://www.cfsan.fda.gov/~acrobat/hgadv1.pdf

5. I've eaten fish from Alamo Lake in the past, am I OK?
The process for calculating risks from exposure to mercury is very conservative. Consuming the average fish from Alamo Lake at the rate of one eight ounce fillet per month is within a margin of safety for women who are pregnant or may become pregnant, nursing mothers and children under the age of 16 and therefore should be even more protective for men. Methylmercury will naturally leave your body over time once exposure has stopped. This process occurs at a rate of roughly one half of the total amount in your body about every two months. If you have any questions about risks from mercury you may have consumed in the past, please contact your health care provider.

6. Where did the mercury come from?
Mercury occurs naturally in the environment and is found in small concentrations in Arizona soils. Cinnabar, a natural solid form of mercury, occurs as reddish veins in or near recent volcanic rocks. Seven of Arizona's 15 counties contain significant deposits with historic mining and exploration for the metal occurring in several areas, including Maricopa and Pinal counties. Mercury has also been used in many industrial and agricultural applications and also in placer mining. Mercury can enter lakes and streams from any of these sources and will build up over time, especially if a waterbody is dammed and the sediments cannot be naturally flushed out. It only takes an extremely small amount of mercury to contaminate a water body. To illustrate, one part per million (the same as one milligram per kilogram) is like one day in 2,739 years.

7. How did the mercury build up in the fish?
Once mercury has entered a lake or stream, it is readily taken up by bacteria found in sediments and sometimes within the animals themselves. Mercury can build up in tissues of insects and as these insects are eaten by predators and these organisms are, in turn, eaten by larger predators, the mercury concentration increases every step, all the way up the "food chain" to "top predators" such as bass. Concentrations of mercury in large, older fish can be many times those found in the insects at the bottom of the food chain.

8. Is it safe to fish in Alamo Lake?
Yes! Recreational fishing should not be affected by this advisory. It is safe for people of any age to handle fish in catch and release situations and as stated above, contact with the water is safe. Fish are also a good source of low fat protein and as long as the fishing public limits consumption of fish caught in Alamo Lake to the above advised limits, the likelihood of any problems is minimal. Also, eating smaller, younger fish which contain less mercury or other types of fish such as trout can lower the amount of mercury you consume.

9. Is it safe to swim or wade in Alamo Lake?
Yes! Once mercury enters an aquatic ecosystem such as a lake or stream, it is quickly

accumulated in the muscle tissue of living organisms such as aquatic insects and fish where it primarily remains, moving from organism to organism. In aquatic ecosystems the vast majority of the mercury is most likely contained in the organisms inhabiting that system, leaving only very small amounts in the water. Swimming or taking part in other recreation in and around the water does not present a human health hazard due to mercury.

10. Is this just an Arizona Problem?

Public consumption advisories regarding mercury are common throughout the United States and Canada. All but six states have mercury advisories presently in effect, 18 states having statewide advisories and Minnesota alone has 948 mercury advisories. Arizona currently has 10 other lakes with mercury advisories, Peña Blanca and Arivaca lakes near Nogales, Upper and Lower Lake Mary near Flagstaff, Soldier, Soldier Anex and Long Lakes southeast of Flagstaff, Lyman Lake south of Saint Johns and Parker Lake near Fort Huachuca. In January, 2001, the USEPA and the FDA jointly issued a fish advisory covering both commercially and recreationally caught fish, advising women who are pregnant or who may become pregnant, to limit consumption of all fish to one eight ounce fillet per week. More information, and the text of this advisory can be found at: http://www.epa.gov/waterscience/fish/